AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Currently amended): A ferromagnetic semiconductor material, comprising:

a semiconductor selected from the group consisting of a group IV-based semiconductor ~~or a ferromagnetic~~, group III-V-based [[or]] compound semiconductor, and group II-VI-based compound semiconductor~~, which is prepared by adding~~:

at least one rare-earth metal element selected from the group consisting of Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu, ~~to a group IV-based semiconductor or a group III-V-based or group II-VI-based compound semiconductor, to~~

wherein said semiconductor and said rare-earth metal element form a mixed crystal ~~of them~~ so as to allow said semiconductor material to have a ferromagnetic state maintaining transparency.

2. (Currently amended): The ferromagnetic ~~group IV-based semiconductor or the ferromagnetic group III-V-based or group II-VI-based compound semiconductor~~ semiconductor material as defined in claim 1, [[which]] wherein said semiconductor material is doped with at least one of an n-type dopant and a p-type dopant.

3. (Currently amended): A ferromagnetic ~~group III-V-based compound semiconductor comprising~~ semiconductor material as defined in claim 1, wherein the semiconductor material comprises a group III-V-based compound semiconductor, ~~which contains~~ Gd, and oxygen as a donor.

4-5. (Cancelled).

6. (Withdrawn): A method of adjusting a ferromagnetic characteristic of a ferromagnetic group IV-based semiconductor or a ferromagnetic group III-V-based or group II-VI-based compound semiconductor, comprising adding either one of:

(1) at least two rare-earth metal elements selected from the group consisting of Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu;

(2) said at least two rare-earth metal elements, and at least one metal element selected from the group consisting of Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No and Lr; and

(3) said (1) or (2), and at least one of an n-type dopant and a p-type dopant,

to a group IV-based semiconductor or a group III-V-based or group II-VI-based compound semiconductor, so as to allow said semiconductor to have a ferromagnetic state, and adjust said ferromagnetic characteristic according to a combination of said rare-earth metal elements.

7. (Withdrawn): The method as defined in claim 6, wherein said ferromagnetic characteristic is a ferromagnetic transition temperature.

8. (Withdrawn): The method as defined in claim 6, which includes adding said at least two rare-earth metal elements to said group IV-based semiconductor or group III-V-based or group II-VI-based compound semiconductor to form a mixed crystal of them, so as to adjust an energy in a ferromagnetic state, and allow the energy to be reduced as a whole according to a kinetic energy of a hole or electron introduced from said rare-earth metal elements by themselves, to stabilize said ferromagnetic state.

9. (Withdrawn): The method as defined in claim 6, which includes adding said at least two rare-earth metal elements to said group IV-based semiconductor or group III-V-based or group II-VI-based compound semiconductor to form a mixed crystal of them, so as to control the magnitude and the positive/negative sign of the magnetic interaction between the rare-earth metal atoms, and a light transmission characteristic to be obtained from said mixed crystallization of said rare-earth metal elements, according to a hole or electron introduced from said rare-earth metal elements by themselves, to provide a desired light filter characteristic in said ferromagnetic semiconductor.

10. (Withdrawn): A method of adjusting a ferromagnetic characteristic of a ferromagnetic group IV-based semiconductor or a ferromagnetic group III-V-based or group II-VI-based compound semiconductor, comprising adding either one of:

(1) at least one rare-earth metal element selected from the group consisting of Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu;

(2) said at least one rare-earth metal element, and at least one metal element selected from the group consisting of Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No and Lr; and

(3) said (1) or (2), and at least one of an n-type dopant and a p-type dopant,

to a group IV-based semiconductor or a group III-V-based or group II-VI-based compound semiconductor, so as to allow said semiconductor to have a ferromagnetic state, and control the concentration of one of said at least one rare-earth metal element, said at least one metal element selected from the group consisting of Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No and Lr, and said at least one of an n-type dopant and a p-type dopant, to adjust said ferromagnetic characteristic.

11. (Withdrawn): The method as defined in claim 10, wherein said ferromagnetic characteristic is a ferromagnetic transition temperature.

12. (Withdrawn): The method as defined in claim 10, which includes:

providing at least two of said rare-earth metal elements; and

adding said at least two rare-earth metal elements to said group IV-based semiconductor or group III-V-based or group II-VI-based compound semiconductor to form a mixed crystal of them, so as to adjust an energy in a ferromagnetic state, and allow the energy to be reduced as a whole according to a kinetic energy of a hole or electron introduced from said rare-earth metal elements by themselves, to stabilize said ferromagnetic state.

13. (Withdrawn): The method as defined in claim 10, which includes:

providing at least two of said rare-earth metal elements; and

adding said at least two rare-earth metal elements to said group IV-based semiconductor or group III-V-based or group II-VI-based compound semiconductor to form a mixed crystal of them, so as to control the magnitude and the positive/negative sign of the magnetic interaction between the rare-earth metal atoms and a light transmission characteristic to be obtained from said mixed crystallization of said rare-earth metal elements, according to a hole or electron introduced from said rare-earth metal elements by themselves, to provide a desired light filter characteristic in said ferromagnetic semiconductor.